

# PROJECT facts

U.S. DEPARTMENT OF ENERGY  
OFFICE OF FOSSIL ENERGY  
NATIONAL ENERGY TECHNOLOGY LABORATORY



## CONTACTS

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## PARTNER

### **Mustang Clean Energy, LLC, a subsidiary of Peabody Energy**

St. Louis, MO.

## LOCATION

### **Mustang Generating Station**

McKinley County, NM



## Clean Coal Power Initiative (CCPI)

08/2005

## AIRBORNE PROCESS™ COMMERCIAL SCALE DEMONSTRATION PROGRAM

Mustang Clean Energy, will design, construct, and operate a full scale sodium-based multi-pollutant scrubber in conjunction with a revenue-generating fertilizer byproduct processing plant at Mustang Energy Company, LLC's Mustang Generating Station. Both Mustang Clean Energy and Mustang Energy Company are subsidiaries of Peabody Energy, the world's largest coal company. The 300 MW (net) station will be located in McKinley County, NM and will be a minemouth pulverized coal-fired power plant burning El Segundo sub-bituminous coal containing up to 1.56% sulfur.

This project was selected in Round Two of the Department of Energy's (DOE) Clean Coal Power Initiative (CCPI) to demonstrate advanced emissions control technologies. The Mustang Project teams Peabody Energy with co-sponsor Airborne Clean Energy (ACE), along with HPD LLC, a Veolia Water North America subsidiary, and Icon Construction, in a commercial-scale demonstration of the "Airborne Process™" scrubber, regeneration system, and fertilizer production systems. Peabody and ACE, as co-sponsors of the proposed effort, will jointly manage the project. HPD and ICON will be responsible for the engineering, procurement, and construction (EPC) of the ACE Mustang Facility.

A subsidiary of ACE will process the spent product from the environmental control process to produce a high value fertilizer by-product

The Airborne Process™ employs a patented method of sodium bicarbonate scrubbing to remove sulfur dioxide and nitrous oxide from flue gas streams. Processes using sodium bicarbonate to scrub flue gases have been historically limited by the high cost of the sodium bicarbonate and the disposal of the resulting sodium sulfate by-product. In the Airborne Process™, the sodium sulfate by-product is regenerated into two end products. The first is sodium bicarbonate for re-use in the scrubbing process. The second is a granular ammonium sulfate-nitrate fertilizer which can be sold, eliminating disposal costs and producing an additional revenue source for the plant. Commercialization of the technology will combine the use of dry sodium bicarbonate injection, coupled with enhanced wet sodium scrubbing to provide control of SOx, NOx, and Mercury (Hg).

## COST

### Total Project Value

\$ 78,864,200

### DOE/Non-DOE Share

\$19,500,000 / \$59,364,200

## ADDITIONAL TEAM MEMBERS

Airborne Clean Energy

Veolia Water North America

Icon Construction

## ADDRESS

### National Energy Technology Laboratory

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## CUSTOMER SERVICE

1-800-553-7681

## WEBSITE

[www.netl.doe.gov](http://www.netl.doe.gov)

This project will demonstrate significant emissions reductions while both achieving market competitive capital and operating costs, and maintaining high plant reliability. Mustang's innovative multi-pollutant control process will provide 99.5% removal of sulfur dioxide (SO<sub>2</sub>), 98% removal of SO<sub>3</sub> (sulfuric acid mist precursor), 98% removal of nitrogen oxides (NO<sub>x</sub>), and 90% removal of Hg from plant emissions, while turning the byproducts into a high-quality, high-value granular fertilizer. In addition, this project will demonstrate that it is feasible to improve the cost competitiveness of coal-fired capacity by providing a significant revenue stream from fertilizer production while keeping capital costs competitive with current technologies. Overall, Airborne's regeneration process is expected to reduce operating costs, reduce waste, reduce landfill costs and generate an additional revenue stream for the plants that use the technology.

This technology and others will help to meet the President's environmental objectives for the Nation. Early CCPI demonstrations emphasize technologies that are applicable to existing power plants and also include construction of new plants. Successful implementation of CCPI will solve many of the environmental issues associated with fossil-fuel use and provide high-efficiency, low-cost, future generating capacity.

